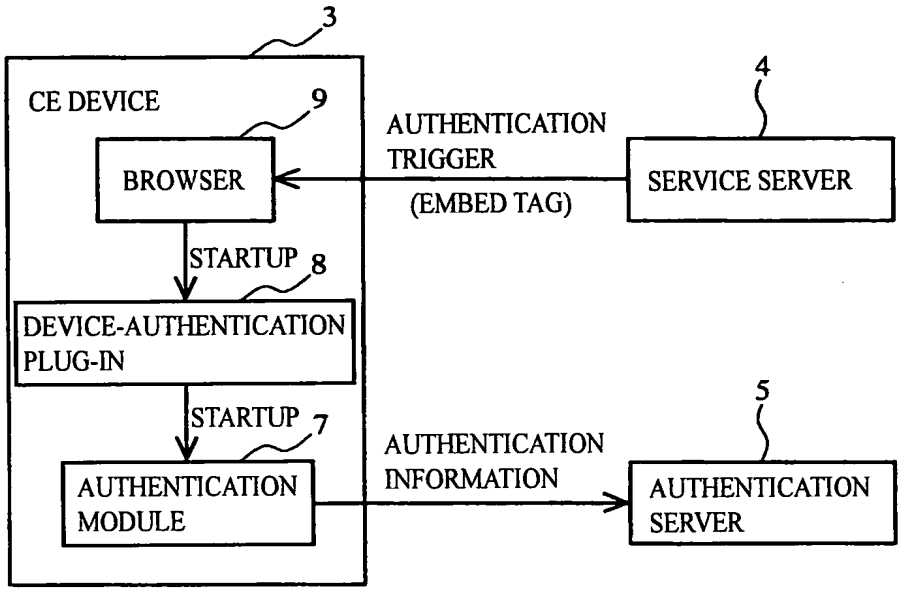
3
CE DEVICE
9
BROWSER
AUTHENTICATION TRIGGER
(EMBED TAG)
4
SERVICE SERVER
STARTUP
8
DEVICE-AUTHENTICATION PLUG-IN
STARTUP
7
AUTHENTICATION MODULE
AUTHENTICATION INFORMATION
5
AUTHENTICATION SERVER

FIG. 1

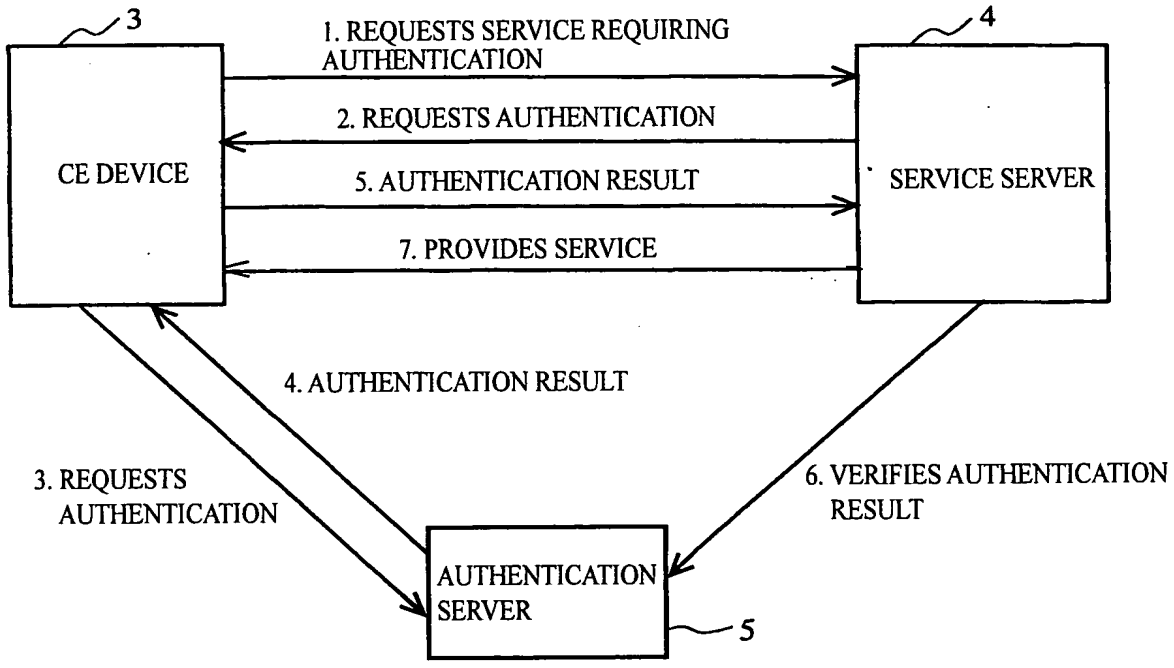
3
CE DEVICE
1. REQUESTS SERVICE REQUIRING AUTHENTICATION
2. REQUESTS AUTHENTICATION
5. AUTHENTICATION RESULT
7. PROVIDES SERVICE
4
SERVICE SERVER
4. AUTHENTICATION RESULT
3. REQUESTS AUTHENTICATION
6. VERIFIES AUTHENTICATION RESULT
AUTHENTICATION SERVER
5

FIG. 2

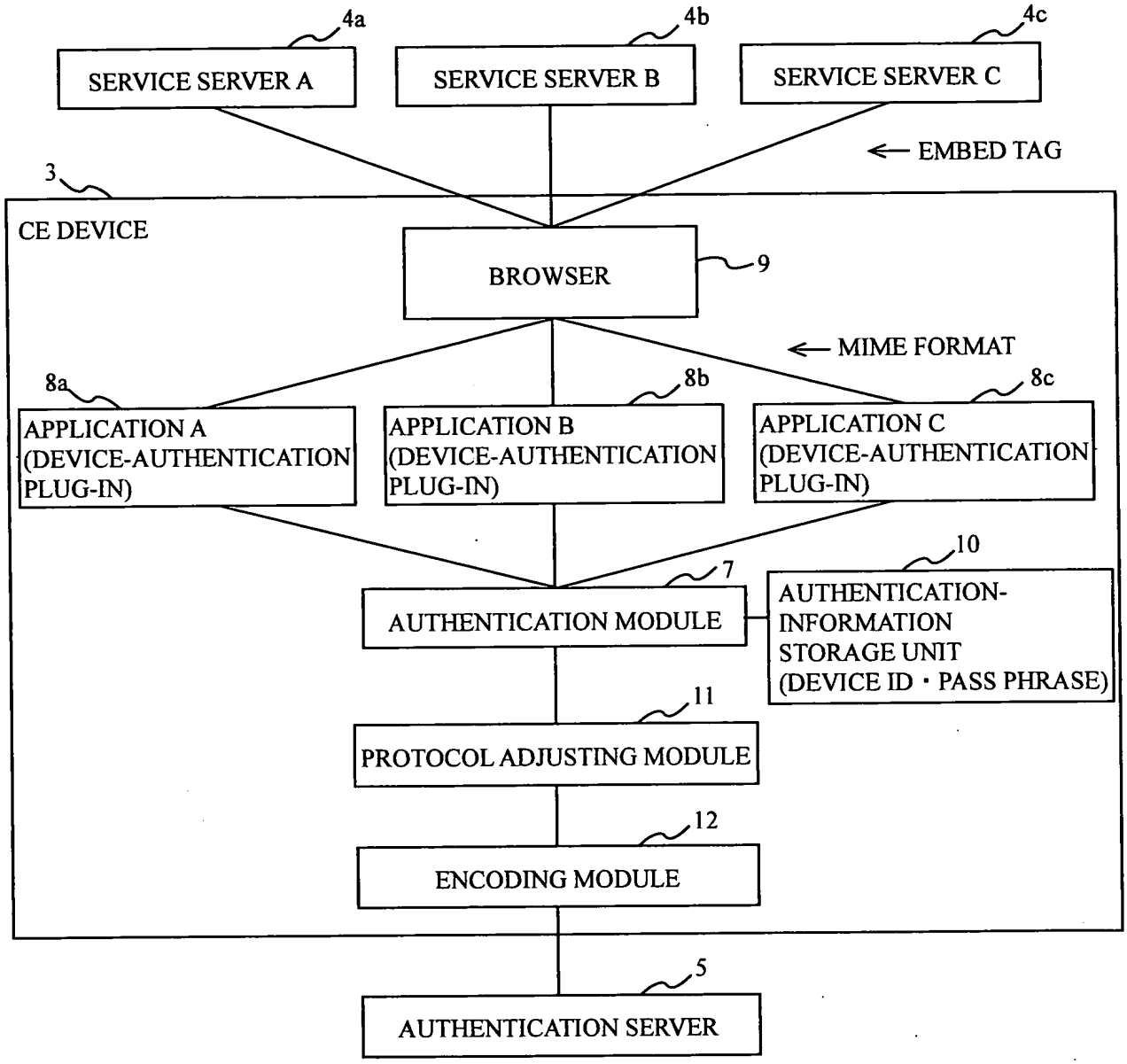
4a
4b
4c
SERVICE SERVER A
SERVICE SERVER B
SERVICE SERVER C
EMBED TAG
3
CE DEVICE
BROWSER
9
MIME FORMAT
8a
8b
8c
APPLICATION A (DEVICE-AUTHENTICATION PLUG-IN)
APPLICATION B (DEVICE-AUTHENTICATION PLUG-IN)
APPLICATION C (DEVICE-AUTHENTICATION PLUG-IN)
10
7
AUTHENTICATION MODULE
AUTHENTICATION-INFORMATION STORAGE UNIT (DEVICE ID・PASS PHRASE)
11
PROTOCOL ADJUSTING MODULE
12
ENCODING MODULE
5
AUTHENTICATION SERVER

FIG. 3

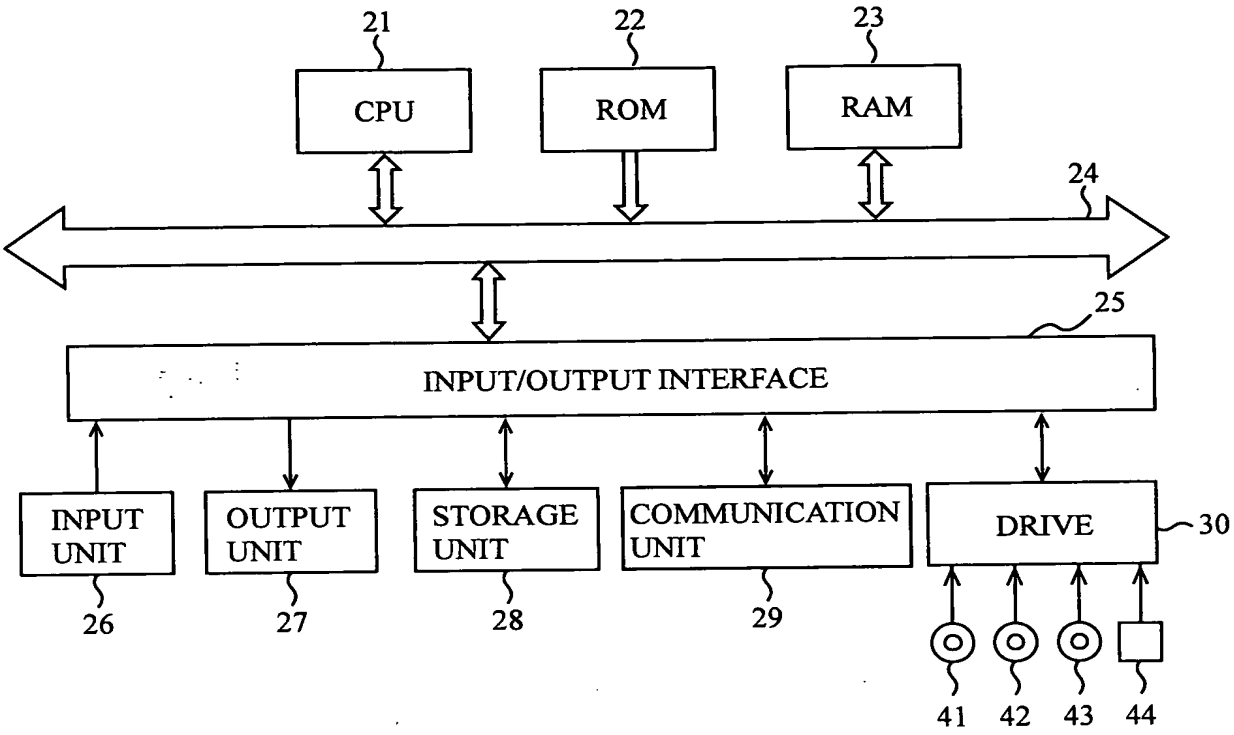

FIG. 4

```
<embed with=0 height=0 hidden=true                    51
type="application/device-authenticate"                52

src=http://servicesite.com/dummyfile.sda              53

inquireServiceURL="https://deviceAuth.com/deviceAuthentication/rpcrouter"
inquireService="urn:xxxx:xxxx:soap-object-name#deviceAuthMethodName"   } 54

targetURL="https://servicesite.com/Target.jsp"
errorURL=http://servicesite.com/Error.jsp             } 55

requestVersion="1.0.0,2.0.0"                          56
/embed>
```

FIG. 5

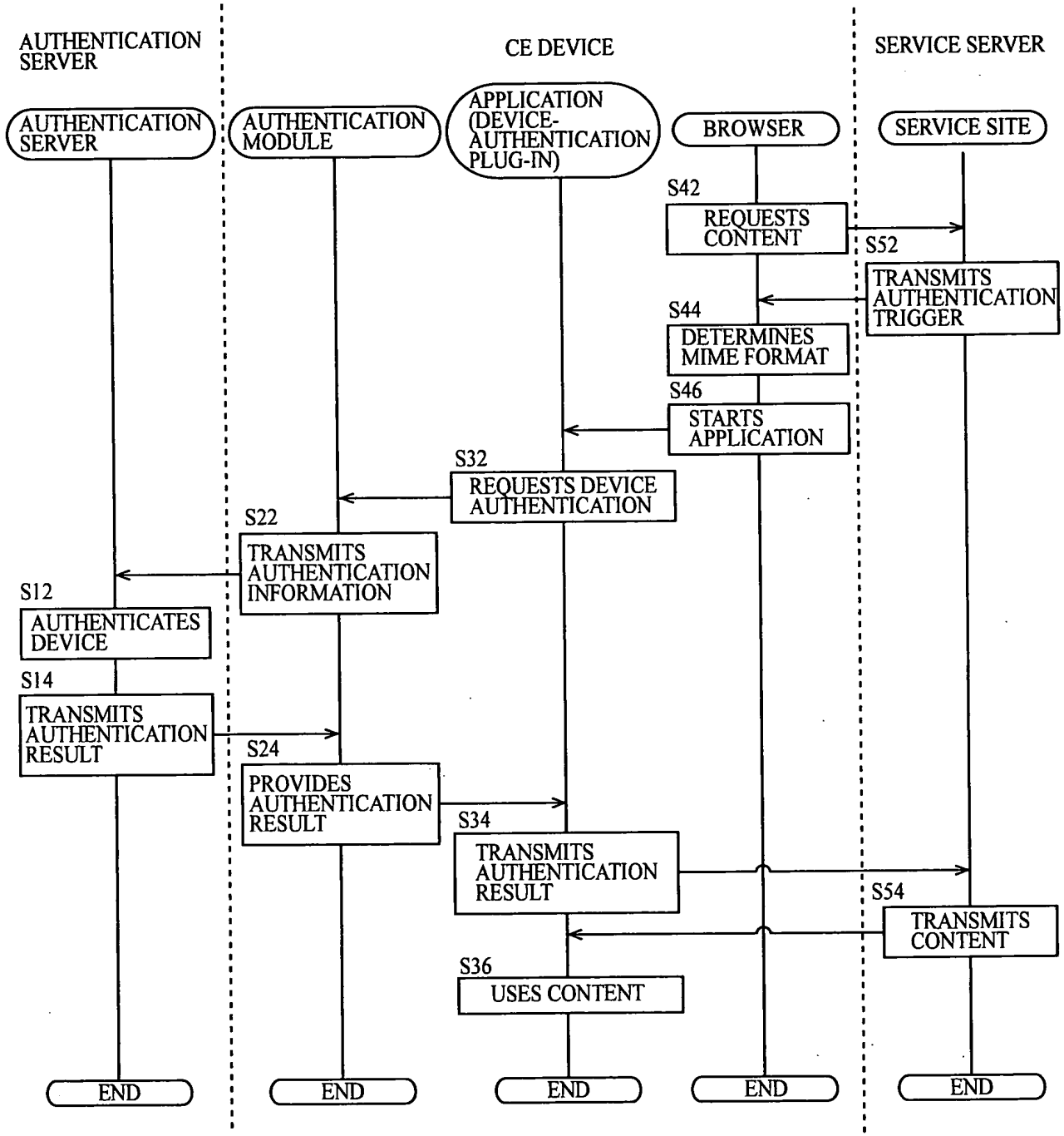
AUTHENTICATION SERVER
CE DEVICE
SERVICE SERVER
AUTHENTICATION SERVER
AUTHENTICATION MODULE
APPLICATION (DEVICE-AUTHENTICATION PLUG-IN)
BROWSER
SERVICE SITE
S42
REQUESTS CONTENT
S52
TRANSMITS AUTHENTICATION TRIGGER
S44
DETERMINES MIME FORMAT
S46
STARTS APPLICATION
S32
REQUESTS DEVICE AUTHENTICATION
S22
TRANSMITS AUTHENTICATION INFORMATION
S12
AUTHENTICATES DEVICE
S14
TRANSMITS AUTHENTICATION RESULT
S24
PROVIDES AUTHENTICATION RESULT
S34
TRANSMITS AUTHENTICATION RESULT
S54
TRANSMITS CONTENT
S36
USES CONTENT
END
END
END
END
END

Fig.6

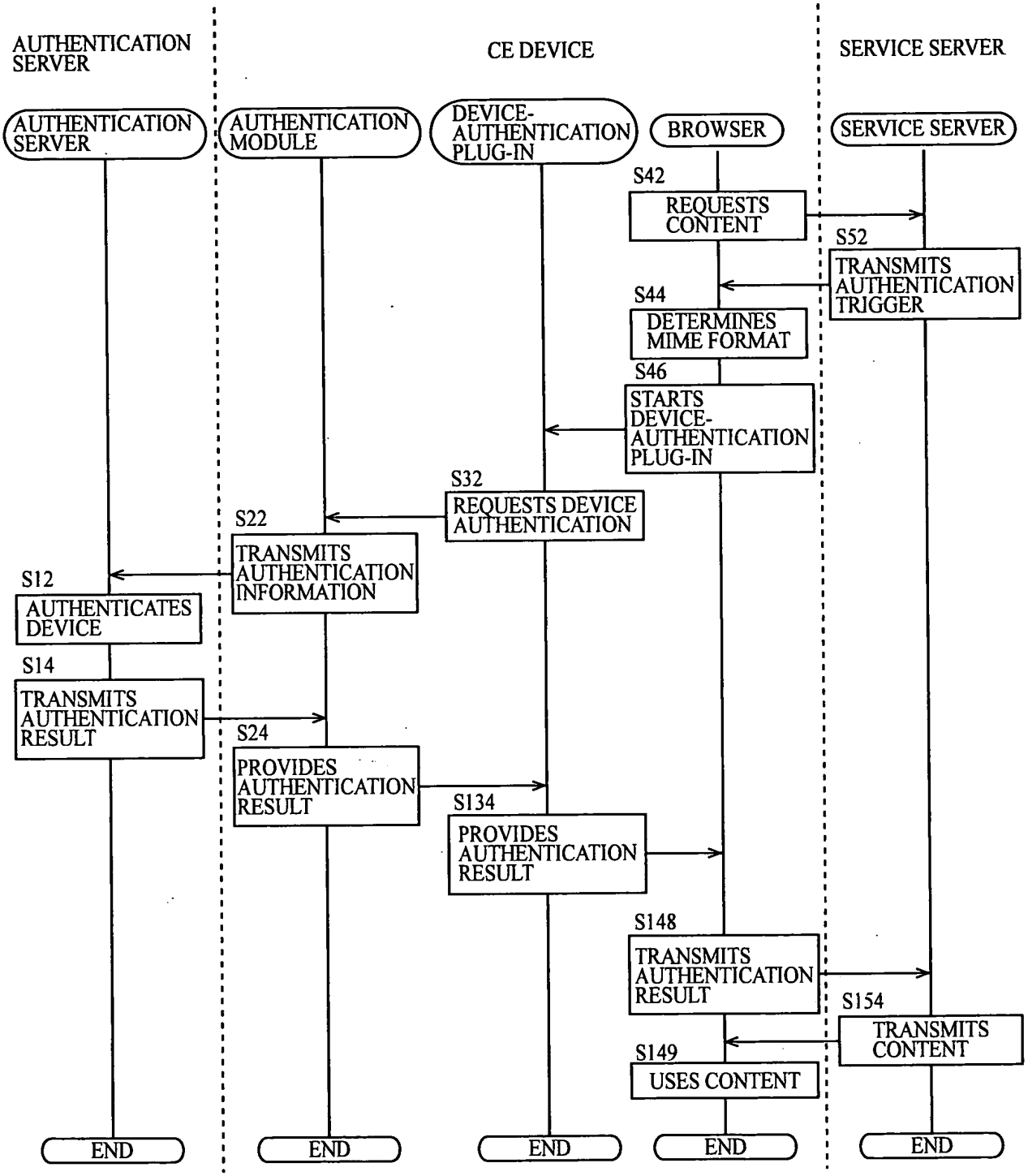
AUTHENTICATION SERVER
CE DEVICE
SERVICE SERVER
AUTHENTICATION SERVER
AUTHENTICATION MODULE
DEVICE-AUTHENTICATION PLUG-IN
BROWSER
SERVICE SERVER
S42
REQUESTS CONTENT
S52
TRANSMITS AUTHENTICATION TRIGGER
S44
DETERMINES MIME FORMAT
S46
STARTS DEVICE-AUTHENTICATION PLUG-IN
S32
REQUESTS DEVICE AUTHENTICATION
S22
TRANSMITS AUTHENTICATION INFORMATION
S12
AUTHENTICATES DEVICE
S14
TRANSMITS AUTHENTICATION RESULT
S24
PROVIDES AUTHENTICATION RESULT
S134
PROVIDES AUTHENTICATION RESULT
S148
TRANSMITS AUTHENTICATION RESULT
S154
TRANSMITS CONTENT
S149
USES CONTENT
END
END
END
END
END

Fig.7

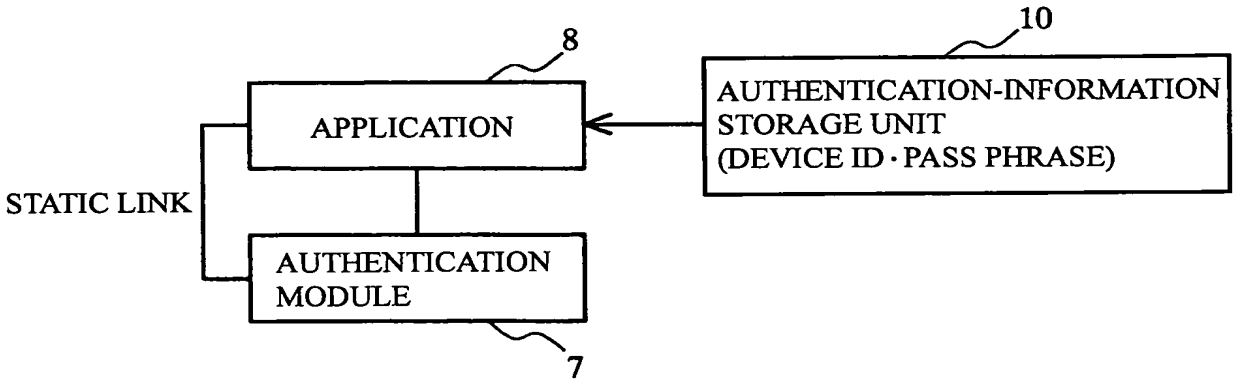

Fig.8

```
                                                    61                                  62
<embed with=0 height=0 hidden=true
type="application/x-zony-device-authenticate"src=http://servicesite.com/dummy.sda>

63 <x-device-authenticate>
     <inquireServiceURL>https://deviceauth.zony.co.jp/soap/rpcrouter</inquireServiceURL>   } 65
     <inquireService>urn:xxxx:xxxx:soap-object-name#deviceAuth</inquireService>
     <targetURL>https://xxxxxxx</targetURL>                                               } 66
     <errorURL>http://xxxxxxx</errorURL>                                                  }
     <requestVersion>1,2</requestVersion>  <-- 67
   </x-device-authenticate>

64 <x-device-authenticate>
     <inquireServiceURL>https://deviceauth2.zony.co.jp/soap/rpcrouter</inquireServiceURL>
     <inquireService>urn:xxxx:xxxx:soap-object-name#deviceAuth</inquireService>
     <targetURL>https://xxxxxxx</targetURL>
     <errorURL>http://xxxxxxx</errorURL>
     <requestVersion>1,2</requestVersion>
   </x-device-authenticate>
```

Fig.9

```
<embed with=0 height=0 hidden=true                                    (71)
type="application/x-zony-device-authenticate"src=http://servicesite.com/dummy.sda>   (72)

<x-A-device-authenticate>                                             (73)
        <inquireServiceURL>https://deviceauth.zony.co.jp/soap/rpcrouter</inquireServiceURL>   (75)
        <inquireService>urn:xxxx:xxxx:soap-object-name#deviceAuth</inquireService>
        <targetURL>https://xxxxxxx</targetURL>                        (76)
        <errorURL>http://xxxxxxx</errorURL>
        <requestVersion>1,2</requestVersion>                          (77)
</x-device-authenticate>

<x-B-device-authenticate>                                             (74)
        <inquireServiceURL>https://deviceauth.zony.co.jp/soap/rpcrouter</inquireServiceURL>
        <inquireService>urn:xxxx:xxxx:soap-object-name#deviceAuth</inquireService>
        <targetURL>https://xxxxxxx</targetURL>
        <errorURL>http://xxxxxxx</errorURL>
        <requestVersion>1.1,2.1</requestVersion>
</x-device-authenticate>
```

Fig.10

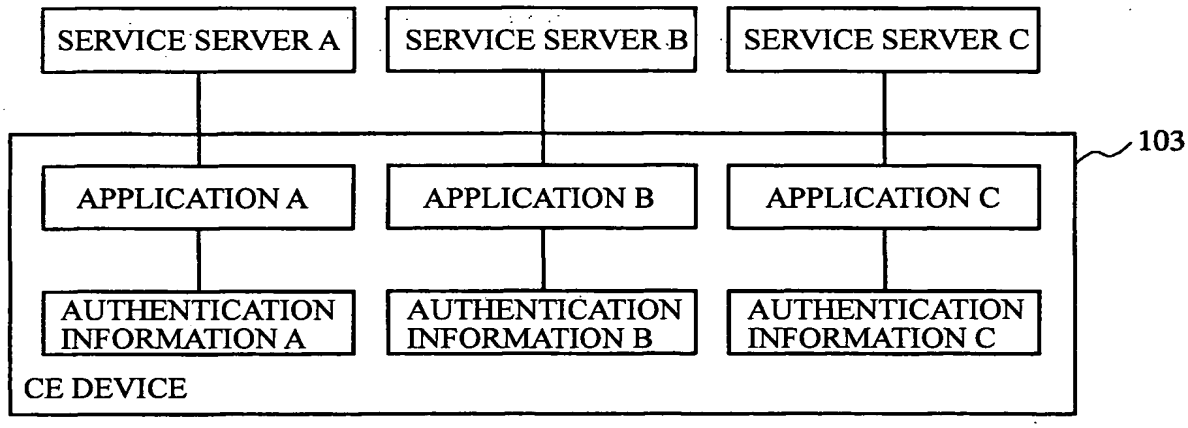

Fig.11

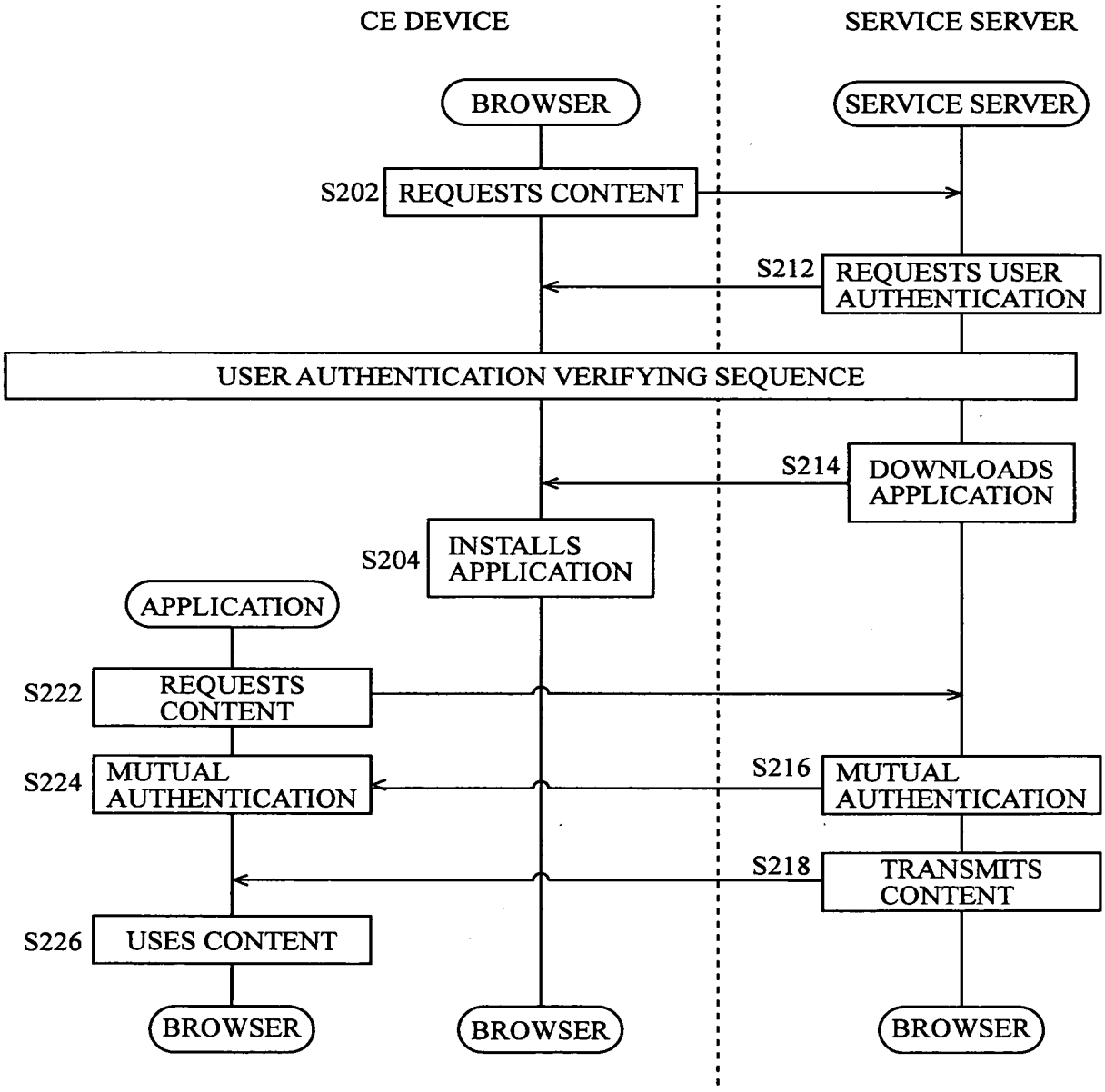
CE DEVICE
SERVICE SERVER
BROWSER
SERVICE SERVER
S202
REQUESTS CONTENT
S212
REQUESTS USER AUTHENTICATION
USER AUTHENTICATION VERIFYING SEQUENCE
S214
DOWNLOADS APPLICATION
S204
INSTALLS APPLICATION
APPLICATION
S222
REQUESTS CONTENT
S224
MUTUAL AUTHENTICATION
S216
MUTUAL AUTHENTICATION
S218
TRANSMITS CONTENT
S226
USES CONTENT
BROWSER
BROWSER
BROWSER

Fig.12